

## ABSTRACT

Methods of tuning, switching or modulating, or, in general, changing the resonance of waveguide micro-resonators. Changes in the resonance can be brought about, permanently or temporarily, by changing the size of the micro-resonator with precision, by changing the local  
5 physical structure of the device or by changing the effective and group indices of refraction of the mode in the micro-resonator. Further changing the asymmetry of the index profile around a waveguide can alter the birefringence of the waveguide and allows one to control the polarization in the waveguide. This change in index profile may be used to change the polarization dependence or birefringence of the resonators.